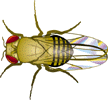
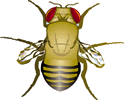
***Phenotype Booklet***

***Comparison Between Different Fruit Flies***

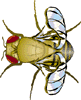
***Normal Fruit Flies:***

[](http://www.exploratorium.edu/exhibits/mutant_flies/normal.gif)These are normal fruit flies, or "wildtypes." Notice the shape and length of their wings and their black-and-tan striped bodies. Also, their eye color is bright red and the antennas stick out in front of their red eyes.

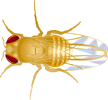
***Short Winged Flies***

[](http://www.exploratorium.edu/exhibits/mutant_flies/short-wings.gif)Notice the shortened wings of these flies. Flies with vestigial wings cannot fly: they have a defect in their "vestigial gene," on the second chromosome. These flies have a recessive mutation. Of the pair of vestigial genes carried by each fly (one from each parent), both have to be altered to produce the abnormal wing shape. If only one is mutated, the healthy version can override the defect.

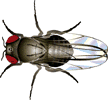
***Curly Winged Flies***

[](http://www.exploratorium.edu/exhibits/mutant_flies/curly-wings.gif)Notice the curled wings of these flies. They have a defect in their "curly gene," which is on the second chromosome. Having curled wings is a dominant mutation, which means that only one copy of the gene has to be altered to produce the defect. In fact, if both copies are mutated, the flies do not survive.

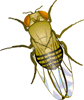
***Yellow Body Flies***

[](http://www.exploratorium.edu/exhibits/mutant_flies/yellow-fly.gif)Notice that these flies are yellower than normal flies. They have a defect in their "yellow gene," which is on the X chromosome. Since the yellow gene is needed for producing a fly's normal black pigment, yellow mutant flies cannot produce this pigment.

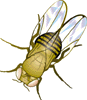
***Ebony Flies***

[](http://www.exploratorium.edu/exhibits/mutant_flies/ebony.gif)Notice that these flies have a dark, almost black, body. They carry a defect in their "ebony gene," on the third chromosome. Normally, the ebony gene is responsible for building up the tan-colored pigments in the normal fruit fly. If the ebony gene is defective, the black pigments accumulate all over the body.

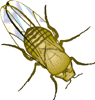
***Orange-Eyed Flies***

[](http://www.exploratorium.edu/exhibits/mutant_flies/orange-eyes.gif)Notice that these flies have orange eyes. They have a defect in their "white" gene, which normally produces the red pigments in the eye. In these flies, the white gene only works partially, producing fewer red pigments than it should

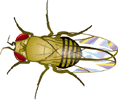
***White-Eyed Flies***

[](http://www.exploratorium.edu/exhibits/mutant_flies/white-eyes.gif)These flies have white eyes. Like the orange-eyed flies, they also have a defect in their "white" gene. But in these flies, the white gene is totally defective: it produces no red pigment at all.

***Eyeless Flies***

[](http://www.exploratorium.edu/exhibits/mutant_flies/eyeless.gif)Notice that these flies have no eyes. They have a defect in their "eyes absent" gene, which normally instructs cells in the larvae to form an eye.

***Leg-Headed Flies***

[](http://www.exploratorium.edu/exhibits/mutant_flies/legheaded.gif)Notice that these flies have abnormal, leg-like antennas on their foreheads. They have a defect in their "antennapedia" gene (Latin for "antenna-leg"), which normally instructs some body cells to become legs. In these flies, the antennapedia gene falsely instructs cells that would normally form antenna to become legs instead.

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